DOCUMENT RESUME

ED 091 439 95 TM 003 653

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TITLE Concerns of Teachers: Research and Reconceptualization.
INSTITUTION Texas Univ., Austin. Research and Development Center for Teacher Education.
SPONS AGENCY Office of Education (DHEW), Washington, D.C. Research and Development Centers Branch.
PUB DATE [Apr 74]
CONTRACT OEC-6-10-108
NOTE 68p.; Paper presented at the Annual Meeting of the American Educational Research Association (59th, Chicago, Illinois, April 1974)

EDRS PRICE MF-$0.75 HC-$3.15 PLUS POSTAGE
DESCRIPTORS *Anxiety; Comparative Analysis; *Inservice Teacher Education; Performance; *Preservice Education; Self Esteem; Student Needs; Student Welfare; *Teacher Attitudes; Teacher Behavior; Teacher Education

ABSTRACT

Factor analyses of 1,359 Teacher Concerns Statements (TCS) indicate a single bipolar factor best describes preservice teachers' concerns, the poles being self-adequacy and teaching performance. Two concerns factors are required to describe inservice teachers' concerns: self-adequacy vs. pupil-benefit (bipolar), and teaching performance. Thus, the two-stage (self-adequacy, pupil-benefit) model of teacher concerns posited earlier for Frances Fuller in 1969 is no longer adequate. As predicted, preservice teachers had higher self-adequacy concerns scores, and inservice teachers had higher pupil-benefit scores. Of the four teacher groups studied (preservice male, female; inservice male, female), only the concerns of male inservice teachers matured with training/teacher experience. Implications for teacher education are discussed. (Author)

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Concerns of Teachers: Research and Reconceptualization[1]

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Teachers' concerns have been conceptualized as classifiable into two types: concerns about benefit to self and concerns about benefit to pupils (Fuller, 1969).

Beginning teachers were posited to be particularly preoccupied about themselves: about their own comfort, adequacy and success rather than about their pupils' comfort, adequacy or success. Typescripts of preservice teachers' group counseling sessions, individual interviews and surveys of their problems and satisfactions showed neophytes mentioning most often concerns about their ability to control the class, their content mastery, supervisors' evaluation of them, working conditions and liking by pupils. Much less frequently mentioned by preservice teachers were concerns about pupil needs and pupil gain.

Little is known about the concerns of experienced teachers. That little however is consistent with the notion that experienced teachers are more likely to be concerned about benefit to pupils than are inexperienced teachers. For example, experienced teachers

in England were concerned about slow progress of pupils whereas their inexperienced counterparts were concerned about criticism from superiors and about maintaining discipline. The experienced teachers derived satisfaction from success of former pupils whereas the inexperienced teachers derived satisfaction from holidays and praise from inspectors (Gabriel, 1957).

Concerns about teaching are expressions of felt need which probably possess motivation for relevant learning. Consequently, any regularities in the concerns of teachers are of interest to teacher educators. If motivation is to be harnessed for learning, curricula should consider the felt needs or concerns of teachers. For example, preservice teachers who are concerned about discipline are probably motivated to learn about methods of class control and perhaps about related material such as research in social control. Such neophytes are probably less ready to learn about topics outside their immediate concern, such as instructional design, statistics or evaluation of student progress, topics often emphasized early in preservice education. The typical sequencing of topics in preservice education courses and texts may fail to provide the kind of information education students want at the time they feel they need it. The same may be true of inservice training. Teacher education, both preservice and inservice, may be answering very well questions trainees are not asking.

The general purpose of this series of investigations has been

to shed some light on this general question about the relationship of teachers' concerns and teacher education.

The particular study reported here had three specific objectives within this larger purpose. Its first objective was to discover whether the posited regularities in the concerns of teachers in the United States actually do exist and to describe them. For example, do concerns of teachers actually fall into two categories, concerns about self and concerns about pupils?

The second objective was to discover whether teachers' concerns are related to experience. Are the concerns of experienced and inexperienced teachers predictably different? The third objective was to reconceptualize teacher concerns if necessary, in the light of new evidence about the structure of concerns and about events which appear to influence concerns.

Assessment of Concerns

A structured instrument has many advantages, particularly for analysis, advantages sorely needed in this study. However, such a format has one disadvantage which, at this stage of our knowledge about concerns, was felt to outweigh any advantages. A structured instrument requires that the instrument developer select the content to be presented to subjects. Such selection may eliminate the very concerns which we most need to observe. For example, in many previous surveys of teacher problems, teachers were presented with structured instruments. These typically contained few if any

items permitting the teacher to report concerns about her own feelings, feelings of inadequacy for example. Consequently, concerns about feelings, a large component of concerns about self, were unlikely to turn up except in very small studies using free response sources such as personal letters (Phillips, 1932) or counseling typescripts (Fuller, 1969).

In order to allow unrestricted reporting of concerns, but to permit a larger survey than is possible using typescripts or correspondence, development was undertaken of a free response instrument and a content analysis system. At first this instrument was a blank sheet of paper with verbal instructions to subjects to write down what they were concerned about. Recently, procedures have become increasingly systematic, and a semi-structured open-ended instrument titled the Teacher Concerns Statement (TCS) was used in the studies reported here. This instrument permits quantification of information collected, but since the subject provides the content, the emergence of still unidentified concerns is not curtailed. The TCS is transitional between the cumbersome typescript approach used in earliest research on teacher concerns and a structured instrument being developed.

Teacher Concerns Statement

The TCS attempts to find out what concerns a teacher by asking her. A cover sheet says "The purpose of this form is to discover what teachers are concerned about at different points in

their careers. With this information, teacher educators can include in teacher education what teachers feel they need." Next information is requested about the subject's name, institution, sex, teaching experience, age, and academic classification. The TCS asks "WHEN YOU THINK ABOUT YOUR TEACHING, WHAT ARE YOU CONCERNED ABOUT? (Do not say what you think others are concerned about, but only what concerns you now.) Please be frank."

Subjects are given ten minutes and both sides of an 8 x 10½ unlined sheet on which to write their response to this question. Administration has been done by a psychometrist or other stranger rather than by an instructor or supervisor. However, no assurance of confidentiality is given subjects.

Scoring Teacher Concerns Statements

Several different category systems have been devised. Initially topics were empirically derived from typescripts of interviews and group counseling sessions. Conceptualizations for topics and for grouping them came from many sources (ASCD, 1962; Combs, 1965; Erickson, 1956, 1959; Gabriel, 1957; Jackson, 1968; Maslow, 1954). Convergences in the structure of interpersonal behavior (Foa, 1961; Manning, 1972; Wiggins, 1968) were particularly useful because concerns seem to be r[illegible]arsals of the interpersonal as well as the intrapersonal aspects of teaching.

One content analysis category system based on these conceptualizations was used to score all the TCS protocols in this

study. This system consists of the six teaching concern categories described below, plus one non-teaching category (Fuller & Case, 1970). The non-teaching category was employed by coders but was discarded for analyses.

Codeable units. The unit coded is the "content unit" defined as every word group that expresses a single codeable concern. A content unit is generally a complete sentence although it can also be a paragraph, a phrase or a clause if that expresses a single codeable concern. The convention is to score every unit, even repetitions of the same category, except those which are identical (in the same words) or nearly identical repetitions.

Categories. The categories are summarized below. They are described more fully in a scoring manual (Fuller & Case, 1970).

At the left are the letters R, A, L, T, N, E, representing the key word describing the category. These letters will be used in this report to refer to categories. In addition 0 code indicates a non-teaching category. The code numbers 0 through 6 were assigned by coders.

Concerns about Self[3]

0 Non teaching Concerns. Statements contain information or concerns unrelated to teaching.

Concerns about Self as Teacher(3)

R Concerns about Role. Where Do I Stand? Statements about the subject's place in the psychological, social, and physical

environment of the classroom, school, or community: about being evaluated, about rules, administrative policy, resources available, and so on.

A Concerns about Adequacy. How Adequate Am I? Statements about one's own adequacy as a teacher or as a person, including statements about discipline and subject matter adequacy.

L Concerns about Being Liked or Liking. How Do Pupils Feel About Me? What Are Pupils Like? Statements about personal, social, and emotional relationships with pupils including the pupils' feelings toward the teacher and the teacher's feelings toward pupils.

Concerns about Pupils[3]

T Concerns about Teaching. Are Pupils Learning What I'm Teaching? Statements about the subject's teaching performance and about whether pupils are learning material selected for them.

N Concerns about Pupil Needs. Are Pupils Learning What They Need? Statements about what pupils need, about whether pupils are learning what they need, and about teaching methods and other means, inside the classroom, to that end.

E Concerns about Educational Improvement. How Can I Improve Myself as a Teacher and Improve All That Influences Pupils? Statements about means for improving the lot of pupils, about the subject's own personal and professional development, about ethics, educational issues, community problems, and other events outside the

classroom related to pupils learning what they need.

Scores Used in Analyses

Frequency score. The basic scores collected are frequency scores. A frequency score is defined for each of the six teaching categories, R, A, L, T, N, E, so that each subject has six frequency scores. Each such frequency score, for one subject, is the number of concerns expressed by that subject which were coded in one concerns category.

These frequency scores provide the basic raw data with which all analyses were performed. However, due to the unstructured nature of the TCS, frequency scores are not comparable for all subjects. One subject might express many concerns and another very few. Some subjects may express only one kind of concern and others may express different kinds of concerns.

To illustrate, consider two hypothetical subjects, A and B. The six frequency scores for each of these subjects is presented in Table 1.

Insert Table 1 about here

Suppose we ask which of these two subjects is best characterized as a category L type subject. If the magnitude of the frequency score for category L concerns is the criteria, then subject A, whose frequency score is 4, is selected over subject B

whose frequency score is 3.

At least two objections to such a use of the magnitudes of raw frequency scores as a criterion for inter-subject comparisons have been recognized. First, B might be said to be a more "pure" category L type subject than A. All B's concerns are coded L, whereas A's concerns are coded T as well as L. The second objection is that A might have been selected because of verbosity rather than because A is more a category L subject than B. Possibly A has more L concerns only because A has expressed more concerns.

Obviously the TCS has severe psychometric limitations even though it has the advantage of allowing subjects to report freely. These limitations have been somewhat ameliorated by the use of two other scores--proportion scores and dichotomized frequency scores, both derived from raw frequency scores.

Proportion score. Six proportion scores are defined for each subject, one score for each of the six teaching concerns categories. For each concerns category, the proportion score is defined as the ratio of the frequency score for that category to the sum of the frequency scores for all six concerns categories. To some extent this maneuver takes into account the "purity" of the protocol, that is the number of concerns expressed in categories other than the one being scored. As can be concluded from Table 1, the proportion scores for subjects A and B for category L are .57 and 1.0, whereas their frequency scores are reversed in magnitude, 4 and 3. Thus, using a frequency score only, A would be selected

as the category L type subject. Using a proportion score, however, B would be selected, a choice which reflects more sensibly the relative strength of L concern in the two protocols.

Dichotomized frequency score. The dichotomized frequency score was defined to take into account subject verbosity. As with proportion scores, one dichotomized frequency score is defined for each of the six concerns categories. For each category, the dichotomized frequency score is defined to have a value of 1 if the corresponding concern category has a value of 1 or more; otherwise the dichotomized frequency score is defined to have a value of 0. A final reference to Table 1 shows that, although use of the raw frequency score would dictate the choice of A as the "category L type" subject, the dichotomized frequency scores for both A and B are 1. Thus A and B are identical with respect to their being characterized as category L type subjects, a choice which reflects more sensibly the presence or absence of L concerns. Thus, the dichotomized frequency score can be thought of as reflecting the presence or absence of a concern and the proportion score can be thought of as reflecting the relative strength of the concern.

Summary scores. All three scores described above (frequency, proportion, and dichotomized scores) require that each subject be characterized by six scores, one for each of the six categories. However some investigations are more easily performed with the use of a single score for a subject which, in some sense at least, best

summarizes the location of the subject on the concerns continuum.

Several such summary scores have been considered, all with one feature in common. All require the assignment to each of the concerns categories of a numerical value representing the location of the category on the concerns continuum.

The lack of a well-defined underlying scaling model is a severe limitation. It was thought, on the basis of literature reviews and clinical observations, that concerns may occur in a sequence from concerns about self to concerns about others, that R and A represent self concerns, that N and E represent concerns about others, and that L and T are difficult to place in one camp or the other. If this proposition is accepted, the sequence is approximately R, A, L, T, N, E. The integers 1 through 6 can be assigned (albeit very cautiously) to the categories R, A, L, T, N, E respectively. (In earlier investigations, a seventh category, representing non-teaching concerns was also utilized. The value of 0 was assigned to this category.)

Obviously any numerical assignments to categories are arbitrary. In fact the correctness of these assignments is itself a point at issue in all these investigations.

The assignment of numerical values is particularly shaky because such assignment assumes that the concerns continuum is an interval scale and that each pair of adjacent categories is the same distance apart. These assumptions cannot be tested with the TCS. Consequently, no unambiguous conclusions can be based on any

summary scores. This will be kept in mind in considering the results of parametric tests performed, since all of these involve the above assumptions. Because of the hazards of using summary scores and parametric tests, dichotomized frequency scores, proportion scores, and non-parametric tests were used wherever possible. Nevertheless, some summary scores were examined.

Mean score. If X represents a concerns category, and f_X represents the frequency of concerns coded in category X, the mean score is defined as

$$M_1 = \frac{1 \cdot f_R + 2 \cdot f_A + 3 \cdot f_L + 4 \cdot f_T + 5 \cdot f_N + 6 \cdot f_E}{f_R + f_A + f_L + f_T + f_N + f_E}$$

This mean has a sawtooth distribution, with peaks at the integer values and valleys in the intervals between adjacent values. Because of this extreme departure from normality, the mean derived as above was not used in any of the analyses reported here.

Mode. The modal score represents the concentration of concerns in one of the six concerns categories. Formally, the modal score is that integer (from 1 to 6) assigned to the concerns category with the largest frequency score. Like the mean score, the modal score is not normally distributed. This distribution, for preservice and for inservice subjects, is shown in Table 2.

Insert Table 2 about here

There it can be seen that the distribution, for both groups of subjects, is bimodal due to the small number of concerns in category L. However, with the exception of this single dip in the distributions at the modal score value of 3 (L), the distributions are a fair approximation of normality. Assuming that the robustness of the F statistic will extend to this distribution and because no other summary statistic with better properties seemed available, the modal score has been the summary score utilized in all parametric statistical tests reported here.

Range. The range is defined as the absolute value of the difference between the largest and smallest integer values assigned to categories in which at least one of the subject's expressed concerns was coded. This range score is an indicator of the spread of the subject's concerns over the whole concerns continuum.

The range scores are very positively skewed as Table 3 reveals. The skewness is so extreme as to preclude analysis by parametric tests. However, the distribution itself provides information which will be presented later.

Insert Table 3 about here

Coding of Teacher Concerns Statement

Coders were instructed to read the whole concerns statement through once and then to place parentheses around every content

unit expressing a concern. They then assigned a code number: 0, 1, 2, 3, 4, 5 or 6 to each content unit. The code numbers were those described above and in a manual (Fuller & Case, 1970).

Coders coded protocols blind, that is they did not know the identity, sex, or preservice-inservice status of the subject. However, coders were familiar with the hypothesized sequence of concerns. In addition, they were instructed to code questionable statements "in context". Homogeneity of codes therefore are, at least in part, an artifact of the instruction to coders about questionable statements.

Coder Stability

Forty-eight protocols were selected and were independently coded twice by each of two coders, two weeks apart. Since concerns had been observed to be related to experience, protocols of subjects with widely varying degrees of teaching experience were selected in order to increase the probability of obtaining scores in all six categories. The 48 protocols included 19 from experienced teachers, 15 from student teachers, and 14 from preservice students with no formal classroom teaching experience.

Since most of the scores used in analyses are based on the frequency of concerns coded in each of the six concern levels, coder stability with respect to each of these six frequencies is of fundamental importance. Spearman rank order correlation coefficients for each of these frequency variables are presented in Table 4. Due to the skewness of each of these frequency distributions

the Pearson r would have been difficult to interpret and hence was not examined.

As can be seen in Table 4, all coefficients are significant beyond the .05 level, but stability is lowest for the less experienced coder #2 in categories R and E.

Insert Table 4 about here

The derived scores actually used in analyses were the mode, the range, and the six proportion scores. Correlation coefficients reflecting coder stability for these scores are shown in Table 5.

Insert Table 5 about here

The distributions for the range and the six proportion scores are all highly skewed. Therefore a Spearman rank order coefficient was computed for these scores also. The distribution of the mode is more nearly normal, but to provide some degree of comparability between correlations using the modal and other scores, the Spearman rank order correlation was also used for the mode. All coefficients are significantly non-zero at the .05 level except for the R proportion scores of coder #2.

Intercoder Consistency

Correlations between coders for the frequency of concerns

coded in each of the six categories are presented in Table 6.

Insert Table 6 about here

The sample of 48 subjects on whom these data are based is almost identical to that used above, and Spearman rank order correlations were also used here. For the first coding three categories were non-significant, but for the second coding all correlations were significantly non-zero.

Correlations between coders for the various derived scores are presented in Table 7. On first coding, three of the eight derived scores were nonsignificant. On the second coding, only one (L) was.

Insert Table 7 about here

Coding Quality and Concerns Scores

Coder stabilities are relatively high for this kind of instrument although T and E appear to require improvement. However, agreement between coders is unsatisfactory for categories R and T on first coding and for L on both first and second coding. Both R and L are infrequent categories. Nevertheless this lack of agreement vitiates confidence in these scores.

One explanation of differences may be rater specific differences

in coding. If this is the case, rater agreement correlations might easily be lower than either of the individual raters' stability coefficients as is true in the data presented here. Examination of the protocols provides some evidence for this explanation. Many statements coded T by coder #1 were quite consistently coded A by coder #2. For example the statement "I am concerned about being able to present the subject matter to my students in such a way that they will be interested." Coder #1 consistently coded this and similar statements as a concern about teaching (T) while coder #2 equally consistently coded it as a concern about ability (A). When such differences occurred, coder #1 was apparently the "better" coder. Stability for coder #1 was higher and it was observed that on second coding, coder #2 tended to change toward coder #1's coding. Since coder #1 coded most of the protocols (931 out of 1359) somewhat more confidence can probably be placed in the categorization than might appear from the intercoder agreement correlation coefficients alone.

Another possible source of differences is coder disagreement about what constitutes a content unit. For example, one coder might code a portion of a protocol as two adjacent A's, while the other coder might code it as a single A. In actuality, they agree on the content code, but their proportion scores for A would not agree. Since the disagreement observed is in proportion scores rather than mode or range, this seems a plausible explanation. Examination of the protocols showed that this actually did happen.

In sum, conclusions about some proportion scores, especially L, need to be informed by their unreliability. However, most of the coding was done by the more experienced coder whose coding was more stable and who tended to provide the standard to which the other coder independently moved. Consequently, the scores were accepted, although with caution.

Influences on Expressions of Concerns

Subjects apparently understand what the TCS expects of them. They rarely ask questions, for example, about what concerns are, and they respond meaningfully to TCS instructions.

Verbosity. Responses vary considerably in length. Hence the concern could be related to the length of the response and long statements coded "higher" than short statements. To examine this possibility, three groups of "extreme" protocols were identified. One was a "pupil benefit" group of protocols containing either only N's, only E's, or N's and E's. A second group was a "self benefit" group of protocols containing only R's, only A's, or only R's and A's. The third was a middle group of protocols, containing only L's, only T's, or only L's and T's. For each protocol the number of words and the number of scored concerns were counted.

As can be seen in Table 8, subject verbosity is for the most part unrelated to the kinds of concerns a subject expresses. The number of words and statements of inservice teachers and the number of statements of preservice teachers are not related to concern level. However the number of words used by preservice teachers is

an exception. There were significant differences ($p < .05$) in word frequency among the three preservice groups, but the order was different from the order tested. Logically it was thought that inarticulate subjects might score low and more articulate subjects high so that the order would be low, medium, high. The actual order found is middle, low, high, with middle concern subjects the least verbose. Consequently there does not seem to be a simple linear relationship between verbosity and concerns level. Apparently concerns level is not merely articulateness. However the possibility of a curvilinear relationship does exist especially since the least wordy subjects were in the middle for the nonsignificantly different inservice groups as well as for the significantly different preservice groups.

Insert Table 8 about here

Social desirability. Whether subjects were frank, as they were asked to be, is unknown. We do know from ratings of social desirability of concerns and from informal discussion with preservice teachers, that concerns about one's adequacy are far less socially desirable than concerns about teaching or concerns about pupils. Since concerns about adequacy comprise almost the whole of concerns about self, and since such concerns are notoriously low status concerns, self concerns may be underestimated and pupil concerns may be overestimated. However, coders knew that some concerns,

especially A concerns, were low status concerns. They were probably alert to hints in the protocol communicating concerns about adequacy. On the one hand was subjects' reluctance to express socially undesireable concerns, and on the other was coders' sensitivity to this reluctance, possibly balancing one another.

Tests of Propositions about Concerns

Teacher Concerns Statements were secured from 1359 teachers in the United States of whom 265 were inservice teachers (100 males and 165 females), 994 were preservice teachers (125 males and 869 females), and 100 were unclassifiable. The teachers surveyed came primarily from one southwestern state although some were in the southeast, middle west, and northeast. Teacher Concerns Statements were coded and scored as described above.

Early and Late Concerns Stages

Are They Stages?

A two stage model of concerns had been posited earlier (Fuller, 1969), on the basis of convergences in the empirical literature and of clinical observations. These two stages were called early concerns about self and late concerns about pupils. Therefore it would not be expected that teachers would have concerns in both stages at once. However, if individuals have concerns in only one stage, this of itself cannot be considered support for distinct stages. Ss may, for example, have unexpressed concerns in other

stages. On the other hand, if teachers do tend to express concerns in two stages simultaneously, that would be strong evidence against the proposition.

Apparently teachers tend not to have both early and late concerns simultaneously. In the original model, categories R, A, and L were considered early concerns and T, N, and E late concerns. As can be seen in Table 9, 75% of the total sample had concerns in either the early stage or the late stage, while only 25% had concerns in both groups. Only 13% of the inservice teachers and 28% of the preservice teachers had mixed concerns.

Insert Table 9 about here

The distinctness of stages was also examined by looking at the range of teachers' concerns. In terms of particular categories, the early late sequence was thought to be R, A, L, T, N, E. If teachers tend to have concerns in one category or in adjacent categories, they can be characterized as having relatively homogeneous concerns, that is as being at some definable point in the sequence. As was true before, concentration is not necessarily evidence for distinct stages, but the finding that concerns are spread over all categories would be evidence against distinct stages.

Teachers did tend to express concentrated rather than spread

out concerns. Of 1293 subjects (all subjects for whom preservice/inservice status was known), 50% expressed only one kind of concern. Apparently this was not due to expressions of only one content unit however. In over two thirds of these single concern category protocols, two or more content units were coded. In other words, about half the subjects expressed only one kind of concern, but most of these expressed more than one concern, all in the same category. Seventy-six percent of the total sample had a range of 1 or less, that is they expressed concerns adjacent in the posited sequence. 91% had a range of 2 or less, while only 1% had a range of 4 or 5. This evidence then does not disconfirm the proposition that stages are distinct.

Are They Early and Late?

Factor loadings. If there are in fact two stages of concerns, we would expect opposite factor loadings for categories that define the two stages. This was examined by two factor analyses, using inservice subjects in one factor analysis and preservice subjects in the second analysis.

Six variables were used in each of these two analyses: one variable for each of the six concerns categories. The scores used were the dichotomized frequency scores described previously. Table 10 summarizes the results for each of the two factor analyses.

Insert Table 10 about here

The factor loadings for variables A and N are quite pronounced. A and N appear to be well defined anchor points for the self-other concerns continuum.

Category range. If the hypothesized sequence of concerns categories is correct, and if subjects' concerns are assumed to be localized on a small interval of the concerns continuum, then expressed concerns of each subject should be coded into a single category or in adjacent categories. The data presented in Table 3 are consistent with this conclusion. Specifically, the larger the range score, which indicates the amount of distance on the posited sequence, the smaller the frequency of subjects who expressed such hypothetically disparate concerns.

However, this evidence presented in Table 3 cannot by itself be construed as support for the posited sequence.

Almost 50% of the sample had a range score of 0. For each of these subjects, all expressed concerns were coded into a single category. This provides absolutely no information to either support or contradict any hypothesized sequence. Any data relevant to sequence can only be obtained from the remaining portion of the sample. Of course, we cannot generalize conclusions about the

sequence of concerns based on only half of the sample, to the complete sample.

Individual profiles. In addition to factors and ranges, examination of the distribution of coded concerns for each subject was considered. If the posited sequence is correct, it seems reasonable to expect an inverted V distribution for each subject, that is his distribution should have a single modal frequency. "Central" categories should be most frequent with category frequencies decreasing with distance from the modal category.

However, this procedure could not be utilized because no single set of criteria seemed appropriate. For example, should the modal category(s) be expected to contain a certain percentage of all the expressed concerns in order to be considered as supporting the hypothesized sequence? If so, what should such a percentage be? Since such decisions seemed necessarily arbitrary, this procedure was not utilized.

Inservice-preservice modal scores. If teacher concerns occur in the two stages posited, early concern with self and later concern with pupils, then concerns near the self end of the continuum (R, A, and L) ought to be more characteristic of preservice teachers while concerns near the pupil end of the continuum (T, N, and E) ought to be more characteristic of inservice teachers. In order to examine this question, the concerns of preservice and inservice teachers were compared using modal scores.

In a previous section of this paper, certain deficiencies in

the use of the modal score were noted. Consequently, conclusions drawn from parametric tests using the mode should be supported by non-parametric tests. The results of both types of tests will be reported when used.

Using the mode, preservice and inservice teachers were successfully discriminated as shown in Table 11. The 2 x 2 analysis of variance reported there incorporated sex as an additional variable.

Insert Table 11 about here

The concerns of inservice teachers were significantly higher than those of preservice teachers ($F = 236.30$, $df = 1, 1257$, $p < .0001$). Males and females did not differ ($F = 0.216$, $df = 1, 1257$, $p = .65$) nor was there a significant interaction between experience and sex ($F = 0.41$, $df = 1, 1257$, $p = .53$).

These results clearly support the proposition that preservice teachers are more likely to express concerns coded in categories posited at the self end of the posited continuum, while inservice teachers are more likely to express concerns that are coded at the pupil end of the continuum, i.e., that self concerns are early concerns and concerns about pupils are late concerns.

Non-parametric tests support this conclusion. For each of the six dichotomized frequency variables, a 2 x 2 contingency table classified subjects by (1) preservice-inservice status, and (2) the value (1 or 0) of the variable. Table 12 presents information

abstracted from these six contingency tables and the results of the six tests performed.

Insert Table 12 about here

Significantly more preservice teachers expressed A and L concerns while more inservice teachers expressed N and E concerns. All these differences are in the predicted direction. Concerns posited to be early concerns are more typical of preservice teachers while concerns posited to be late concerns are more typical of inservice teachers. For two categories however, R and T, there were no differences. This was not unexpected however. R concerns were infrequently expressed, and T had been considered difficult to place at either the early or late end of the sequence.

Inservice and preservice range. If concerns are related to experience, then the concerns of preservice teachers being lower would have room to increase, and might be increasing. The concerns of inservice teachers would be expected to be higher, have less room to increase, and more to decrease, but should not be decreasing. Consequently preservice teachers might have concerns all along the sequence, low, middle, and high. Inservice teachers on the other hand would have middle and high concerns, but few low concerns. If this is so, preservice teachers' range scores should be higher than those of inservice teachers.

The data in Table 3 indicate a trend in the expected direction

As can be seen there, 80% of inservice teachers and 76% of preservice teachers had a range of 1 or less. Chi square (14.363, df = 5, p = .05) supports rejection of the no difference hypothesis in the predicted direction. However, the non-parametric Kolmogorov-Smirnov test failed to reach significance (D = .0636).

Training Stage and Sex of Preservice Teachers

If inservice-preservice status is related to concerns level, perhaps the amount of experience during preservice education is related to concerns. To examine this question, six stages of training were defined for preservice subjects. These are shown in Table 13.

Insert Table 13 about here

The modal scores for 1028 preservice subjects were used in a 2 (sex) by 6 (stage) analysis of variance. Table 14 summarizes cell characteristics.

Insert Table 14 about here

No significant main effects for sex (F = 0.57, df = 1, 1016, p = .47) or for stage of preservice training (F = 0.91, df = 5, 1016, p = .48) were found. The interaction was also non-significant (F = 0.39, df = 5, 1016, p = .86).

One conclusion that might be drawn is that preservice subjects form a homogeneous group with respect to concerns category. However, an alternative explanation is that the TCS is simply not a sufficiently powerful instrument to detect any but gross differences such as preservice-inservice differences.

Inspection of Table 14 reveals an interesting characteristic of subjects in stage 3, first contact with the classroom. The mean scores for both male and female subjects in this stage are, in an absolute sense, low in comparison to the means for all other groups except one. This one is the male stage 6 group, but its 3 subjects are too few to warrant serious scrutiny.

This characteristic dip in concerns level is not significantly different from the mean scores of other stages. However, it warrants further investigation when a better instrument is available, particularly since it was expected that self concerns, especially those about discipline and content adequacy, would intensify at first contact with teaching (Newlove & Fuller, 1971).

The most striking feature of these data is that concerns do not change over training, except to go down at first contact with teaching.

Experience of Inservice Teachers

Inservice-preservice status is related to concerns. A plausible conjecture is that the concerns level of inservice teachers is a function of years of experience. Specifically it was proposed that there is a monotonically increasing relationship between years of experience

and concerns level: the greater the amount of teaching experience, the higher the concerns level. To test this hypothesis, a linear model was constructed, of the form

$$(1) \qquad Y = \sum_{i=1}^{50} a_i X^{(i)} + E$$

The vector $X^{(i)}$ contains the element 1 for each subject who had i years of experience; all other elements had a value of 0. The criterion vector, Y, contained as elements the modal concern level for each of the subjects.

The model (1) was tested for existence of a linear relationship between years of experience and concerns level. That is, a restricted model was constructed, of the form

$$(2) \qquad Y = \sum_{i=1}^{50} (b_0 + i \cdot b_1) X^{(i)} + E^{(2)}$$

The full model (1) was compared to the restricted model (2), using the statistic

$$F = \frac{(R_f^2 - R_r^2)/df_1}{(1 - R_f^2)/df_2}$$

where R_f^2 = squared multiple correlation coefficient of the full model (1); R_f^2 = squared multiple correlation coefficient of the restricted model (2); and df_1, df_2 are the degrees of freedom.

The results were F = 0.9 (df = 33, 212) and the linearity assumption was not rejected.

The least square estimate of b_1 in model (2) was $\hat{b}_1 = 0.0131$.

This value may be interpreted as the slope of the straight line relationship between the number of years of experience and the level of concerns. The primary question of interest is whether this linear relationship is an increasing relationship; that is, is the value of b_1 significantly different from zero?

To test the null hypothesis of $b_1 = 0$, this restriction was imposed on model (2), creating a new restricted model,

$$(3) \qquad Y = b_0 \cdot \sum_{i=1}^{50} X^{(i)} + E^{(3)}$$

Models (2) (the full model) and (3) (the restricted model) were compared by use of the F--statistic described above. The results ($F = 2.24$, $df = 1, 244$, $p = .14$) did not support a rejection of the null hypothesis of zero slope.

To summarize, the above tests provide no evidence to support the proposition that an increasing number of years of teaching experience results in an increasing level of concerns. Before rejecting the hypothesized increasing relationship, alternative reasons for these results were explored. Specifically, the sample could consist of subgroups which might cancel effects when these subgroups were consolidated.

Two additional studies were conducted to investigate this possibility. In the first study, inservice teachers were differentiated by sex. In the second study elementary teachers and secondary teachers were separated.

Sex and experience of inservice teachers. The starting model was a model of the form

$$(4) \quad Y = \sum_{i=1}^{50} a_i X^{(i)} + \sum_{i=1}^{50} b_i Z + E$$

For each i, the vector $X^{(i)}$ contained the element 1 if the corresponding subject was a male teacher with i years of experience; otherwise, the element was 0. The vectors $Z^{(i)}$ are similarly defined, for female teachers. The criterion vector Y contained as elements the modal concerns levels of the subjects.

The first hypotheses tested were that there is a linear relationship between the number of years of experience of male teachers and their concerns level, and that there is a corresponding linear relationship for female teachers. The restricted model designed to test this hypothesis was a model of the form

$$(5) \quad Y = \sum_{i=1}^{50} (c_0 + i \cdot c_1) X^{(i)} + \sum_{i=1}^{50} (d_0 + i \cdot d_1) Z^{(i)} + E^{(2)}$$

The full and restricted models, (4) and (5), were compared by use of the F--statistic discussed earlier. Results of this test ($F = 0.67$, $df = 50, 164$) did not support rejection of the null hypothesis. The least square estimates of the parameters c_1 and d_1 were $\hat{c}_1 = .0392$ and $\hat{d}_1 = .0007$. These values may be interpreted as the slopes of the straight line relationships of the male subsample and the female subsample, respectively. The test for an increasing relationship between number of years of experience and

concerns level, for the male and for the female subsamples, is simply a test of the null hypotheses that $c_1 = 0$ and $d_1 = 0$.

Each of these null hypotheses was tested separately. Restricted model (6)

$$(6) \quad Y = c_0 \cdot \sum_{i=1}^{50} X^{(i)} + \sum_{i=1}^{50} (d_0 + i \cdot d_1) Z^{(i)} + E^{(3)}$$

was utilized to test the null hypothesis that $c_1 = 0$ (that is, that for the male subsample, there was no increasing relationship between the number of years of experience and concerns level). Restricted model (7)

$$(7) \quad Y = \sum_{i=1}^{50} (c_0 + i \cdot c_1) X^{(i)} + d_0 \sum_{i=1}^{50} Z^{(i)} + E^{(4)}$$

was utilized to test the corresponding null hypothesis for the female subsample.

The results of the first of these two tests ($F = 5.53$, $df = 1, 214$, $p < .05$) permit rejection of the null hypothesis. Therefore, for the male subsample, the level of concerns may be considered to increase with an increasing number of years of experience. However, for the female subsample, the results ($F = .01$, $df = 1, 214$, $p < .94$) do not permit rejection of the null hypothesis. For the female subpopulation, there is no increase in level of concerns for increasing number of years of experience. Figure 1 presents a graphic summary of these two tests. The y-intercept values of the two lines in Figure 1 are 4.51 (for males) and 4.78 (for females). These values are the least square values of the y-intercept.

Insert Figure 1 about here

Experience and elementary-secondary status of inservice teachers. The starting model utilized to ascertain the relationship of elementary/secondary teaching classification and the number of years of teaching experience on concerns levels was of the same form as model (4). Only the definitions of the vectors $X^{(i)}$ and $Z^{(i)}$ are different: for each i, the vector $X^{(i)}$ contained element 1 if the corresponding subject was a secondary teacher with i years of teaching experience; otherwise, the element was 0. The vectors $Z^{(i)}$ are similarly defined for elementary teachers.

First, the hypothesis was tested that there is a linear relationship between the number of years of experience of secondary teachers and their concerns level, and that there is a corresponding linear relationship for elementary teachers. The restricted model constructed to make this test was of the same form as model (5).

Results of the F--test used for comparison of models (4) and (5) ($F = 0.89$, $df = 53, 135$, $p < .68$) did not permit a rejection of the null hypothesis. Accordingly, the relationship between years of experience and the modal score, for both elementary and for secondary teachers, may be considered a linear, rather than a curvilinear, relationship.

The least square estimates of the parameters c_1 and d_1 were $c_1 = -0.0236$ and $d_1 = 0.0149$. These values may be interpreted as

the slopes of the linear relations of the elementary teacher subsample and the secondary teacher subsample, respectively. The algebraic signs of the least square estimates might suggest that for the elementary teacher subsample, the level of concerns is inversely related to the number of years of teaching experience. The corresponding relationship, for the secondary teacher subsample, is a direct relation although not as great in magnitude. However, whether these relationships actually hold, in general, needed to be tested.

Thus, tests were conducted to determine whether the parameters c_1 and d_1 were significantly different from 0. The two null hypotheses ($c_1 = 0$, and $d_1 = 0$) were tested separately.

The restricted model constructed to test the null hypothesis that $c_1 = 0$ was a model of the same form as (6), except that the vectors $X^{(i)}$ and $Z^{(i)}$ are redefined as indicated above. Similarly, a restricted model of the same form as (7) was constructed to test the null hypothesis that $d_1 = 0$. Results of both tests ($F = 2.39$, $df = 1, 188$, $p = .12$, for the null hypothesis that $d_1 = 0$) were a failure to reject the null hypotheses of zero slopes.

The results of the above regression analyses may be summarized as follows. If no classifications are imposed on inservice subjects, then the modal concern score does not change with experience. If, however, inservice subjects are further characterized by sex, then male subjects' modal concerns scores tend to increase with increasing experience. However, the modal concerns of females remain constant

over experience. Finally, when inservice subjects are characterized by elementary or secondary level, the modal concerns score remains constant for all years of teaching experience for both elementary and secondary teachers.

Conclusions and Reconceptualization

Limitations

The Teacher Concerns Statement has serious psychometric limitations. Consequently, only the most striking conclusions probably should be given credence. Even some of these may be artifacts of coding instructions and other controlled conditions. For example, individual teachers tended, in accord with prediction, to have a limited range of concerns, to express concerns in one category primarily or in adjacent categories. However, it should be remembered that subjects had only ten minutes to respond. In addition, coders coded questionable statements "in context." If a coder could not decide between A and T, a frequent dilemma, and the rest of the protocol had been coded A, the coder coded the questionable statement A. Coding was a difficult task and questionable statements were probably frequent. Consequently, little confidence should probably be placed in findings about the homogeneity of individual teachers' concerns in terms of the sequence posited here. The scores themselves are probably an estimate of the central tendency of each teacher's concerns rather than of their full range.

Inservice-preservice differences and male-female differences may deserve more confidence since coding was blind. Still it is possible that handwriting, idiosyncratic language, professional terms, verb tense, and other protocol characteristics, unrelated to concerns, could have differentiated preservice from inservice and male from female protocols. However, strenuous efforts were made to minimize such effects. For example, coders were cautioned to disregard protocol characteristics which might indicate whether subjects had preservice or inservice status. For instance, they disregarded verb tense in case preservice teachers used future tense and inservice teachers used present tense.

Summary of Findings

Differences in concerns between preservice and inservice teachers seem quite clearcut. Although teachers in both groups expressed concerns in all six categories, inservice teachers were more concerned about pupil benefit and less concerned about self benefit than preservice teachers. Inservice teachers' modal scores were higher and more of them had pupil concerns than preservice teachers. In general the proposition was supported that concerns about pupils are more mature concerns, since pupil concerns are more characteristic of experienced than inexperienced teachers. However, we would like to say parenthetically that we believe on the basis of clinical observations that, in situations where in-service teachers are under stress, for example when the atmosphere

of the school is uneasy, we would expect the survival concerns of inservice teachers to increase.

Concerns do not mature from beginning to end of preservice education however. In fact the absolute modal score decreased at one point, at first contact with teaching, a drop which was not significant but occurred in both male and female preservice teachers groups.

The concerns of inservice male teachers became more mature with increasing experience but this was not true of female inservice teachers nor of elementary or secondary teachers.

The posited sequence seems complete since no new categories needed to be added and it was possible to code all statements. However some categories had serious deficiencies. In considering which categories would be used in developing a structured instrument, certain categories seemed like good candidates for discard.

Category L (Liking) had the poorest record. Even on second coding interjudge agreement for the L proportion score was unsatisfactory. More important L is weak conceptually, including as it does both concerns about being liked (conceptualized as borderline concerns about self benefit) and concerns about what pupils are like and about liking them (conceptualized as borderline concerns about pupil benefit). L made some contribution to differentiating between preservice and inservice teachers, but was infrequent in both groups. All in all, L seemed one candidate for discard.

Category E (Educational Improvement) not only had low stability but factor loadings of E were inconsistent with the hypothesized sequence. More important, E, as it was actually coded, was poorly related conceptually to the sequence. Initially it had been defined as a place for pupil benefit concern which required action outside the classroom. However such concerns were almost never expressed in that form, so statements about politics, polemics on social issues, and even gripes, were coded E. Consequently the relationship of this category to student benefit is tenuous. In addition, E statements might be a product of working in the *in vivo* situation, and thus spuriously inflate differences between preservice and inservice teachers. Since E might thus lead to an inappropriate rejection of a true null hypothesis, E also seemed like a good candidate for discard.

The sequence initially posited was R, A, L, T, N, E. When L and E are discarded, four categories remain: R, A, T, and N. R however is an extremely infrequent category accounting for less than 1% of the modal scores. Since it is conceptually related to A, R seems a candidate for consolidation with A.

Reconceptualization

Now posited are three stages. The first is defined by (R+A). The second is defined by T. The third stage is defined by N. This reconceptualization was examined by factor analysis and was the only set of data so examined.

Factor analysis. The factor analysis and varimax rotation for preservice and inservice teachers separately is shown in Table 15.

Insert Table 15 about here

As can be seen there, the sequence of the loadings on the first principal axis is as hypothesized: Variables 1, 2, and 3 are in the posited order for both preservice and inservice samples. The order of the sequence for the preservice group is opposite that for the inservice group. This again is as hypothesized.

The loadings for variable 2, "T" (concerns about teaching), are quite different for the two samples. This is shown by the loadings of the varimax rotated axis for the two samples. For the preservice sample, the high loading for variable 2 persists after the varimax rotation. However, for the inservice sample, the loading for variable 2 after the varimax rotation drops to a non significant level. In addition, variable 2 loads high on a second factor.

In the preservice sample, the loadings for variables 2 (T) and 3 (N) on the first principal axis are similar, at least in comparison to the loading for variable 1. However for the in-service sample, this pronounced similarity between the loadings for variables 2 (T) and 3 (N) does not exist. In fact, variable 2,

concerns about teaching, seem to be of a different nature for the two samples. For preservice teachers concerns about teaching and about pupils might be said to be similar or at least to occur together. For inservice teachers however, the concerns about teaching variable seems to be independent of the continuum defined by variables 1 and 3.

These results might be restated this way. Preservice teachers are concerned either about their own adequacy or else they are concerned about teaching generally. They do not make the apparently fine distinction between concerns about teaching performance (T) on the one hand and concerns about pupil benefit (N) on the other.

Inservice teachers however do make this distinction. For inservice teachers, two principal factors are defined rather than one as was true of preservice teachers. The first factor is quite clearly a self-pupil factor defined by concerns about adequacy (A) on the one hand and by concerns about needs of pupils (N) on the other hand. Concerns about teaching (T) makes no contribution to this factor. This seems quite clearly a self benefit-pupil benefit factor.

The second inservice factor is a teaching performance factor reflecting concern about teaching in the sense of instilling in pupils what is being taught them.

What can we make of these three factors?

First, it seems quite apparent that all three variables (R + A; T; N) are required to describe the concerns of preservice and inservice

teachers. The single self-pupil dimension posited originally is not adequate.

Second, preservice teachers' concerns order themselves along one dimension, one we might call a "survival" dimension. They ask on the one hand "Can I do it" and on the other "How do I do it."

The concerns of inservice teachers can be ordered on two dimensions neither of which is the preservice survival dimension. The first inservice dimension (self benefit-pupil benefit) is that initially posited for preservice teachers. This proposition was incorrect since the self-pupil dimension can describe only inservice concerns, not preservice concerns. The second inservice dimension is apparently degree of concern about teaching performance, more or less concern with the question "How do I do it."

Research of Other Investigators.

The reports of investigators who have used the Teacher Concerns Statement are consistent with the findings reported above. First, differences have been reported between preservice concern scores and inservice concern scores. Second, preservice concerns scores have been found to be resistant to change.

Concerns Statement mean scores and teaching experience were found to be related ($r = .35$, $p < .01$) when both inservice and preservice teachers were in the sample (Gardner, 1971), supporting the finding above that expressed concerns change from preservice to inservice status.

The concerns of preservice teachers however are found to be resistant to change. Only a group of freshmen with no previous experience who taught nine hours a week for one semester increased their mean concern score, whereas no change in concern was observed for a similar group teaching during a second year nor for a group which observed teaching six hours a week for a semester but did not teach (Harp, 1971). After a semester of intensive feedback from instructors, peers, and audio and video tapes, percentages of Role and Adequacy concerns decreased somewhat and percentages of Liking and Teaching concerns increased, but pupil Need concerns (N) decreased slightly (Nicholson, Nilsson, Richard, Corcoran, 1972). Interaction analysis training and training in Piagetian-type interview techniques produced a significant increase in mean TCS scores immediately after treatment, but a decrease occurred by the end of the semester to levels approximately equal to those obtained on initial measures (Jones, 1970). Jones comments that her findings are in accord with the idea that

> ...New higher level concerns appear to be relatively easy to arouse but if resolution of the new concerns does not occur within a short time, the concern level drops back to the pre-arousal level (p. 85).

When observations were made of the verbal behaviors of four extreme groups (experienced and inexperienced teachers with high and low concerns), elementary teachers with high con-

cerns, regardless of experience status, were more indirect in their verbal behaviors than teachers with low concerns (Babb, 1971), i.e., high concern teachers spent significantly more time praising or encouraging students and using student ideas in classroom discussion, whereas teachers with low concerns spent more time giving directions and criticising. Differences on the Florida Taxonomy of Cognitive Behavior indicated that students in the classrooms of teachers with low concerns had fewer opportunities to use information as opposed to merely memorizing information (Babb, 1971).

High concerns were related to improvement over a semester in ratio of extended teacher talk to extended pupil talk (Jones, 1970). This was true for teachers with Piagetian-type interview training, but not for teachers with interaction analysis training or a placebo treatment. On the other hand, Gardner (1971) found no relationship between concern level and ability to identify and use behavioral objectives. His finding is not surprising however since teaching experience was inversely related to this ability.

The intuitive conclusion we draw is that teachers whose TCS responses are scored high by coders use certain kinds of classroom interventions more than other teachers. Special kinds of teacher training seem likely to arouse higher level concerns at least temporarily, but plain vanilla preservice training per se does not change concerns.

Can knowledge of concerns be used in preservice training to invent treatments rather than measure their effects? Similarity between the content of education students' concerns (measured by a forced choice concerns instrument, not the TCS) on the one hand, and the content of educational psychology courses on the other, was found to be related to student satisfaction with the quality of the course ($r = -.23$, $p < .05$) and to satisfaction with the instructor-student relationship ($r = -.25$, $p < .005$) when a small difference score indicated high similarity (Patterson, 1969).

Needed Research

Although these findings from different investigators with different populations of teachers from different parts of the country are consistent with the model posited earlier (Fuller, 1969), still the limitations of the TCS and of the studies themselves, such as small sample size, preclude accepting these findings at face value. It is possible, for example, that the coding of the TCS reflects something which is related to these varied criteria but is not necessarily, solely, or entirely, teacher "concerns." It is possible that some artifact, some trick of speech or style, for example, could be what is being coded. We consider this unlikely but still possible. For all these reasons, a first priority seems to be the development of a structured instrument which has better psychometric properties than does the TCS.

One obstacle to the development of such an instrument is the difficulty of devising items about self concern, teaching concern, and pupil concern which are of equal social desirability. A second problem is that when concerns are suggested to them, teachers want to choose them all. In addition they do not choose from a suggested list the same concerns they write down spontaneously. We do not know whether these problems can be resolved.

Even in the absence of such an instrument, it might be possible to discover whether certain concern statements are related to motivation to learn certain kinds of content. For example, are preservice teachers who express concern about discipline more interested than others in learning about methods of class control? Perhaps not. Perhaps they conceive of some concerns as being helped by content, but other concerns as problems which need to be worked out in other ways. If there is a relationship between concern and content, to what content does it extend? Does a teacher concerned with discipline and interested in learning about methods of class control also want to learn about research in social control?

If concerns statements and statements about desired content are related, will the person be more satisfied and interested when content is congruent with his concerns than when it is not? Will he learn more? Will he be more likely to translate his learning into action? In short, does "relevance" really help,

as is so often claimed? Such information would certainly be useful not only in teacher education but in other kinds of training.

Implications for Preservice Education

If concerns-relevant content is found to amplify learning, and some tentative evidence suggests that it might (Patterson, 1969), then lectures and other material for teachers can be made more effective through a sort of rough tailoring to size. For example, "survival training" lectures, while not fitted exactly to every beginning education student, would still fit most of them, as a size 42 suit fits a size 42 man, not perfectly, but better than a randomly selected suit--or lecture--does. On the basis of the evidence now available, it seems reasonable at least to offer survival training to preservice teachers.

Such training might be particularly welcome immediately after first contact with teaching when survival concerns seem particularly intense.

Progress for education students probably should be construed in terms of increase in concern about teaching performance. If a preservice teacher is concerned about how to enunciate clearly to students, the teacher educator probably ought to accept this as a relatively mature concern and not cloud the discussion with irrelevant matters like whether the pupils are paying attention!

The thought even occurs to us that only survival training (content mastery, communication skills, and so on) should be offered during preservice education and that all the sophisticated substance of professional education ought to be offered only during inservice years.

Implications for Inservice Education

Whereas preservice teachers are, in their concerns at least, a relatively homogeneous lot, inservice teachers probably are not.

Four groups of inservice teachers might exist. One wants survival training only. Another wants survival training and also performance skills. A third wants to find out how to make more impact on pupils but is open to learning some performance skills. The fourth is only concerned about increasing what pupils learn. These last are probably like the teachers Jackson (1968) describes.

Herein may lie an explanation for the oft cited "irrelevance" of inservice teacher education. The most concerned, vocal, and respected teachers may be almost exclusively in group 4, concerned about their impact on pupils and what pupils are actually gaining. Unless they can see the relationship of training to this concern, they may be impatient with it. Some other research suggests that the interest of such teachers may be aroused by impact feedback, for example, sophisticated assessment about

attitudes, learning, and prognosis of individual students. Such feedback has been found to be disruptive to the behavior of many teachers (Johnson et al., 1963; Lauroesch et al., 1969) but may arouse the interest of teachers concerned about pupil benefit.

Summary

Teachers' concerns, previously posited to consist of early concern about benefit to self and later concern about benefit to pupils, were examined from content analysis of 1359 Teacher Concerns Statements. As predicted, preservice teachers were more concerned about benefit to self and inservice teachers more concerned about benefit to pupils. Inservice male teachers' concerns matured with experience but the concerns of preservice teachers did not change over training nor did female inservice teachers' concerns change with experience.

Factor analyses suggest one survival dimension (concern about adequacy vs. teaching performance) for preservice teachers and two dimensions for inservice teachers. These two are 1) concern about self adequacy vs. concern about pupil benefit, and 2) concern about teaching performance.

Further research suggested includes development of a better concerns assessment instrument and testing of hypotheses about relationships between concerns and learning. Suggestions for teacher education include survival training for self concerned preservice teachers and impact feedback for pupil-benefit concerned inservice teachers.

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Footnotes

[1]This research was supported in part by the U. S. Office of Education, Contract No. OE 6-10-108 and the Research and Development Center for Teacher Education

[2]The authors wish to acknowledge the assistance of Gary Borich, Gail Brown, Carol Case, Carolyn Dahlmeyer, Gene Hall, and Yvonne Smith.

[3]In the manual, categories were separated for convenience of the coders into three groups, Concerns about Self (O), Concerns about Self as Teacher (R, A, L) and Concerns about Pupils (T, N, E). These titles are included here in order to represent accurately the instructions given to coders. However, O concerns were not used in analyses, and the two remaining groupings are referred to in this paper as concerns about self (rather than concerns about self as teacher) and concerns about pupils.

TABLE 1

Frequency Scores for Two Hypothetical Subjects

Subject	Frequency Scores					
	R	A	L	T	N	E
A	0	0	4	3	0	0
B	0	0	3	0	0	0

TABLE 2

Distribution of Modal Scores for

Inservice and Preservice Teachers

Modal Score	Teachers					
	Preservice		Inservice		Consolidated	
	Frequency	%	Frequency	%	Frequency	%
0	6	½	0	0	6	0
1	15	1	1	0	16	1
2	424	41	22	8	446	34
3	88	9	8	3	96	7
4	274	27	48	18	322	24
5	201	19	108	41	309	23
6	20	2	78	29	98	7
Totals	1028	100	265	100	1293	100

TABLE 3

Distribution of Range Scores for

Inservice and Preservice Teachers

Range Score	Teachers					
	Preservice		Inservice		Consolidated	
	Frequency	%	Frequency	%	Frequency	%
0	501	49	146	55	647	50
1	264	26	67	25	331	26
2	162	17	33	12	195	15
3	87	8	10	4	97	8
4	10	1	6	2	16	1
5	4	0	3	1	7	0
Totals	1028	100	265	100	1293	100

TABLE 4

Spearman Rank Order Correlations Between First and Second Codings (Coded Two Weeks Apart) for Frequency of Concerns in Each of Six Categories (N=48)

Coder	Category of Concerns					
	R	A	L	T	N	E
#1 (Experienced)	.81	.76	.56	.50	.85	.59
#2 (Inexperienced)	.27	.77	.66	.59	.58	.41

Note.--All coefficients are significantly non-zero at the α=.05 level.

TABLE 5

Spearman Rank Order Correlations Between First and Second Codings (Coded Two Weeks Apart) for Derived Scores (N=48)

Coder	Modal Score	Range Score	Proportion Scores for Categories R	A	L	T	N	E
#1 (Experienced)	.76	.57	.83	.80	.58	.54	.79	.63
#2 (Inexperienced)	.59	.70	.24 (NS)	.68	.61	.56	.64	.41

Note.--All coefficients are significantly non-zero at the α=.05 level except where noted by (NS).

TABLE 6

Spearman Rank Order Correlations Between Coders for Frequency of Concerns in Each of Six Categories (N=48)

Codings	Category of Concerns					
	R	A	L	T	N	E
1st coding of 2 coders	.23 (NS)	.62	.21 (NS)	.20 (NS)	.31	.35
2d coding of 2 coders	.37	.38	.30	27	.64	.26

Note.--All coefficients are significantly non-zero at the α=.05 level except where noted by (NS).

TABLE 7

Spearman Rank Order Correlations Between

Coders for Derived Scores (N=48)

Codings	Modal Score	Range Score	Proportion Scores for Categories					
			R	A	L	T	N	E
1st coding of 2 coders	.44	.42	.23 (NS)	.70	.16 (NS)	.20 (NS)	.45	.42
2d coding of 2 coders	.33	.49	.39	.46	.22 (NS)	.28	.60	.27

Note.--All correlations are significantly non-zero at the α=.05 level except where noted by (NS).

TABLE 8

Relationship of Concerns Level to Verbosity for Preservice and Inservice Teachers

Concerns Level	Preservice		Inservice	
	# Words	# Statements	# Words	# Statements
High Concerns Ss (N, E, or N+E)	Mean=93.2 N=58	Mean=2.2 N=58	Mean=75.7 N=102	Mean=2.9 N=102
Middle Concerns Ss (T, L, or T+L)	Mean=77.2 N=115	Mean=2.3 N=115	Mean=66.1 N=28	Mean=2.6 N=28
Lo Concerns Ss (R, A, or R+A)	Mean=86.5 N=121	Mean=2.6 N=121	Mean=68.8 N=8	Mean=2.0 N=8
F	3.834	1.58	0.51	0.73
df	2,291	2,291	2,135	2,135
prob	$p < .05$	Non-sig.	Non-sig.	Non-sig.

TABLE 9

Proportions of Preservice and Inservice Teachers Expressing Concerns Only about Self, Only about Pupils, or Mixed

Classification	Self Only[a]	Pupils Only[b]	Mixed[c]
Preservice Teachers	43%	29%	28%
Inservice Teachers	10%	77%	13%
All Teachers	36%	39%	25%

[a]Concerns only about self: R, A, and/or L.

[b]Concerns only about students: T, N, and/or E.

[c]Concerns about both self and pupils: R, A, L, T, N, and/or E.

TABLE 10

First Principal Axis Factor Analysis

of Dichotomized Frequency Scores

Dichotomized Frequency Score for Category	Factor Loadings on 1st Principal Axis	
	Preservice Sample (N=1028)	Inservice Sample (N=265)
R	-.20	.43
A	-.83	.79
L	-.31	.41
T	.55	.13
N	.73	-.68
E	.10	-.26

Note.--Percentages of the trace extracted by the first principal axis were 1) for preservice sample, 27.7%; 2) for inservice sample, 25.4%.

TABLE 11

Means and Standard Deviations of Modal Scores

by Sex and Experience (N=1261)

Classification	Male	Female	Row Means
Preservice	N=199	N=829	
	Mean=3.23	Mean=3.25	3.24
	SD=1.31	SD=1.29	
Inservice	N=68	N=165	
	Mean=4.90	Mean=4.78	4.84
	SD=1.30	SD=1.08	
Column Means	4.06	4.02	

TABLE 12

Chi Square Summary of Dichotomized Frequency Scores

of Inservice and Preservice Teachers by Category Sequence

Posited Sequence of Concern Categories	Preservice/ Inservice Status	Ss (Preservice or Inservice) Who Had At Least One Coded Concern in Category f	%	Results	Remarks
R	Pre	60	6	NS* at .05 level	
	In	8	3		
A	Pre	634	63.1	$p < .05$	More preservice than inservice Ss expressed A and L concerns
	In	42	15.7		
L	Pre	243	24.2	$p < .05$	
	In	25	9.7		
T	Pre	426	42.4	NS at .05 level	
	In	95	35.6		
N	Pre	267	26.6	$p < .05$	More inservice than preservice Ss expressed N and E concerns
	In	150	56.2		
E	Pre	17	1.7	$p < .05$	
	In	100	37.5		

* NS=non-significant

TABLE 13

Stages of Training Defined for Preservice Subjects

Stage No.	Description
1	No classroom teaching experience and no previous education course work.
2	Education course work but no classroom teaching experience.
3	Presently observing in the classroom (which may or may not include limited teaching) and taking education course work.
4	Completed observation in the classroom and presently taking education course work.
5	Presently student teaching.
6	Completed student teaching, but not yet an inservice teacher.

TABLE 14

Means and Standard Deviations of Modal Scores of Preservice Teachers by Sex and Stage of Training

Stage of Training	Male	Female	Row Means
1	N=62 Mean=3.27 SD=1.06	N=123 Mean=3.14 SD=1.32	3.21
2	N=56 Mean=3.46 SD=1.46	N=355 Mean=3.31 SD=1.31	3.39
3	N=24 Mean=2.75 SD=1.33	N=146 Mean=2.73 SD=1.13	2.74
4	N=11 Mean=3.36 SD=1.21	N=184 Mean=3.55 SD=1.27	3.46
5	N=2 Mean=3.00 SD=1.41	N=46 Mean=3.39 SD=1.22	3.20
6	N=3 Mean=2.67 SD=1.15	N=16 Mean=3.38 SD=1.26	3.02
Column Means	3.09	3.25	

TABLE 15

Factor Analysis of Three Variable Reconceptualization

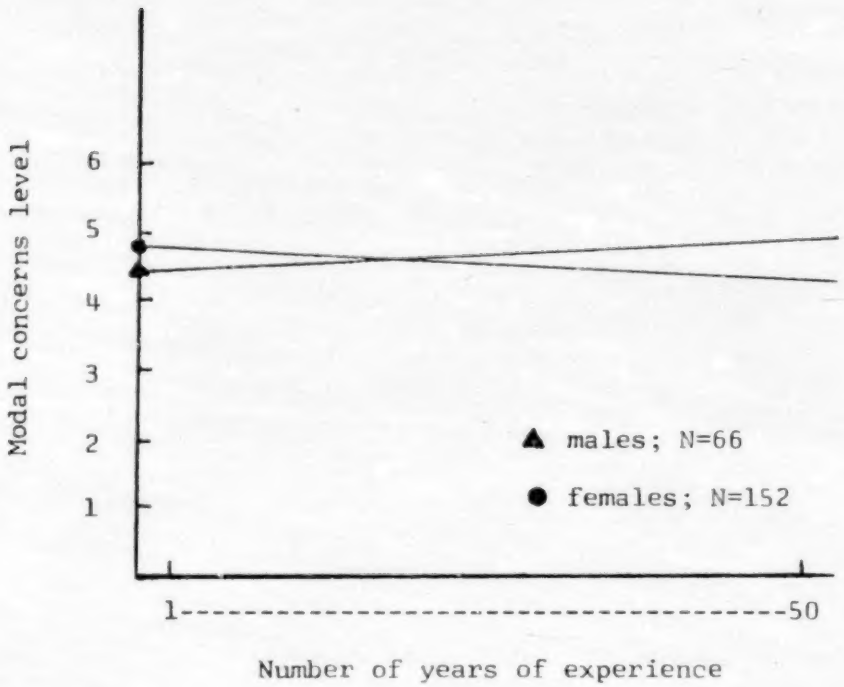
	Preservice (N=1028)		Inservice (N=265)			
Variable	1st Principal Axis	Varimax Rotation of 1st Principal Axis	1st Principal Axis	Varimax Rotation of 1st Principal Axis	2d Principal Axis	Varimax Rotation of 2d Principal Axis
1 (R+A)	-.8604	-.8604	.7833	.8233	-.2830	-.1260
2 (T)	.5957	.5957	.2135	.0233	.9614	.9846
3 (N)	.7295	.7295	-.8175	-.7986	-.0176	-.1756

Note.--Only principal axes with eigen values >1.0 are presented.

Figure Captions

Fig. 1

Relationship Between Number of Years of Teaching Experience and Modal Concerns Level for Males and Females


Modal concerns level
6
5
4
3
2
1
males; N=66
females; N=152
1----------50
Number of years of experience